Prior COVID-19 Infection in 6 months Prior to Elective Lumbar Spine Surgery is associated with Increased Morbidity

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INTRODUCTION: The COVID-19 pandemic has radically impacted and transformed the practice of the surgical world over the past couple of years. While a significant proportion of research has rightfully focused on prevention and/or treatment of acutely infected COVID-19 patients, little is known about how a prior history of a positive COVID-19 infection (i.e. recovered patients) influences outcomes following major elective surgeries. The purpose of the current study was to study whether previous positive COVID-19 infection has an impact on 90-day medical and surgical complication rates following elective lumbar spine surgeries.

METHODS: The 2019 to 2021 PearlDiver Mariner Database, an all-payer claims database, was used to identify patients undergoing elective 1-to-2 level primary posterior/anterior/combined fusions or 1-to-2 level laminectomies for degenerative lumbar spine pathologies and 1-to-2 level primary microdiscectomies for herniated discs. Patients undergoing fusion for fracture, malignancy, infection and/or those undergoing revision procedures were excluded from the study. The study group was divided into two cohorts – those who had a prior history of a COVID-19 infection within the 6 months before surgery and those who were not infected by the virus. Patients who had a positive coded COVID-19 status on the day of surgery were excluded from the analysis. Multi-variate logistic regression analyses were used to assess the impact of prior COVID-19 infection on 90-day medical and surgical complication rates, while controlling for baseline demographics (age, gender, payor type/insurance) and clinical characteristics (charlson comorbidity index, type of surgery, and prior ventilator dependence).

RESULTS: A total of 49,643 patients undergoing elective lumbar spine surgery between 2019 and 2021 were included in the study, out of which 154 patients (0.3%) had had a positive COVID-19 status and/or infection in the 6 months prior to the surgery. After adjusting for baseline demographics and clinical characteristics, patients with a prior history of COVID-19 infection were more likely to experience cardiac complications (3.3% vs. 1.1%, OR 2.75; p=0.021), thromboembolic complications (6.0% vs. 2.3%, OR 2.35; p=0.014) and sepsis (5.3% vs. 2.0%, OR 2.31; p=0.024) within 90 days of the index surgery.

DISCUSSION AND CONCLUSION: Based on a national retrospective review of patients undergoing elective lumbar spine surgery, it appears that having harbored a positive COVID-19 infection in the 6 months prior to surgery is associated with higher risks of experience thromboembolic events, sepsis and acute myocardial infarctions or acute congestive heart failure. The findings of the study support the need of careful post-operative care monitoring and/or risk-stratification of prior COVID-19 patients.